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KANSAS ACADEMY OF SCIENCE

VOL. XXIX

TRANSACTIONS



Semi-Centennial
Volume

FIFTIETH ANNUAL MEETING

LAWRENCE

March 15 and 16, 1918

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TRANSACTIONS
OF THE
KANSAS
ACADEMY OF SCIENCE

VOL. XXIX

SEMI-CENTENNIAL VOLUME

FIFTIETH ANNUAL MEETING

LAWRENCE

March 15 and 16, 1918

TABLE OF CONTENTS.

PART I. OFFICIAL:	PAGE
Constitution and By-Laws.....	6
Past Officers of the Academy.....	10
Officers of the Academy, 1918.....	10
Minutes of the Fiftieth Annual Meeting.....	11
Report of the Delegate to the Illinois Academy of Science. <i>E. H. S. Bailey</i>	13
PART II. FIFTIETH ANNUAL MEETING—SEMICENTENNIAL PROGRAM:	
List of Delegates from Other Academies.....	16
Greetings from Other Academies, and from Individuals.....	16
President's Address: A Half Century of Bacteriology. <i>Frank</i> <i>Ulysses Grant Agrelius</i>	23
Symposium: Fifty Years of Scientific Development in Kansas.	
The Academy of Science. <i>W. A. Harshbarger</i>	35
Botany. <i>Lyman C. Wooster</i>	41
Chemistry. <i>E. H. S. Bailey</i>	44
Early History of Medicine. <i>J. M. McWharf</i>	46
Early History of Pharmaceutical and Medical Chemistry. <i>L. E. Sayre</i>	49
Lecture: The Progress of Science Since the Foundation of the Kansas Academy of Science. <i>Samuel W. Williston</i>	53
PART III. GENERAL PROGRAM	64

PART I.—OFFICIAL.

PAST PRESIDENTS.

1869, 1870... B. F. Mudge.	1898..... D. E. Lantz.
1871-1873... John Fraser.	1899..... E. B. Knerr.
1874-1878... F. H. Snow.	1900..... A. S. Hitchcock.
1879, 1880... B. F. Mudge.	1901..... E. Miller.
1881, 1882... J. T. Lovewell.	1902..... J. T. Willard.
1883..... A. H. Thompson.	1903..... J. C. Cooper.
1884, 1885... R. J. Brown.	1904..... Edward Bartow.
1886..... E. L. Nichols.	1905..... L. C. Wooster.
1887..... J. D. Parker.	1906..... F. O. Marvin.
1888..... J. R. Mead.	1907..... J. A. Yates.
1889..... T. H. Dinsmore, jr.	1908..... E. Haworth.
1890..... G. H. Failyer.	1909, 1910... F. B. Dains.
1891..... Robert Hay.	1911..... J. M. McWharf.
1892..... E. A. Popenoe.	1912..... F. W. Bushong.
1893..... E. H. S. Bailey.	1913..... A. J. Smith.
1894..... L. E. Sayre.	1914..... W. A. Harshbarger.
1895..... Warren Knaus.	1915..... J. A. G. Shirk.
1896..... D. S. Kelly.	1916..... J. E. Todd.
1897..... S. W. Williston.	

OFFICERS OF THE ACADEMY, 1916.

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<i>Secretary Emeritus</i> , J. T. LOVEWELL.....	Topeka.
<i>Secretary</i> , W. W. SWINGLE.....	Topeka.

EXECUTIVE COUNCIL.

Ex officio, the PRESIDENT, the SECRETARY, the TREASURER.

Elective for 1916.

J. A. YATES.	J. M. MCWHARF.
A. J. SMITH.	J. A. G. SHIRK.

OFFICERS OF THE ACADEMY, 1917.

President, FRANK U. G. AGRELIUS..... Emporia.
Vice President, BENNETT M. ALLEN..... Lawrence.
Vice President, L. D. HAVENHILL..... Lawrence.
Treasurer, WM. A. HARSHBARGER..... Topeka.
Secretary Emeritus, J. T. LOVEWELL..... Topeka.
Secretary, W. W. SWINGLE (to February 24, 1917)..... Topeka.
Secretary, H. WILSON SWINGLE (to December 31, 1917)... Topeka.
Secretary, GUY WEST WILSON (from January 1, 1918).... Lawrence.

EXECUTIVE COUNCIL.

Ex officio, the PRESIDENT, the SECRETARY, the TREASURER.

Elective for 1917.

LEROY HUGHBANKS, <i>Chairman</i> .	J. A. G. SHIRK.
A. J. SMITH.	J. M. MCWHARF.

Past Officers of the Academy.

YEAR	President.	First Vice President.	Second Vice President.	Secretary.	Treasurer.
1869	B. F. Mudge.....	J. S. Whitman.....	.....	J. D. Parker.....	F. H. Snow.....
1870	B. F. Mudge.....	J. S. Whitman.....	.....	J. D. Parker.....	F. H. Snow.....
1871	John Fraser.....	B. F. Mudge.....	.....	J. D. Parker.....	F. H. Snow.....
1872	John Fraser.....	B. F. Mudge.....	R. J. Brown.....	J. D. Parker.....	F. H. Snow.....
1873	John Fraser.....	B. F. Mudge.....	R. J. Brown.....	J. D. Parker.....	F. H. Snow.....
1874	F. H. Snow.....	J. A. Banfield.....	J. D. Parker.....	John Wherrell.....	R. J. Brown.....
1875	F. H. Snow.....	B. F. Mudge.....	J. D. Parker.....	John Wherrell.....	R. J. Brown.....
1876	F. H. Snow.....	B. F. Mudge.....	J. D. Parker.....	Joseph Savage.....	W. M. Kedzie.....
1877	F. H. Snow.....	B. F. Mudge.....	.....	Joseph Savage.....	W. K. Kedzie.....
1878	F. H. Snow.....	B. F. Mudge.....	J. H. Carruth.....	E. A. Popence.....	R. J. Brown.....
1879	B. F. Mudge.....	J. H. Carruth.....	Joseph Savage.....	E. A. Popence.....	R. J. Brown.....
1880	B. F. Mudge.....	J. H. Carruth.....	Joseph Savage.....	E. A. Popence.....	R. J. Brown.....
1881	J. T. Lovewell.....	J. H. Carruth.....	Joseph Savage.....	E. A. Popence.....	R. J. Brown.....
1882	J. T. Lovewell.....	J. H. Carruth.....	Joseph Savage.....	E. A. Popence.....	R. J. Brown.....
1883	A. H. Thompson.....	J. R. Mead.....	G. E. Patrick.....	E. A. Popence.....	R. J. Brown.....
1884	R. J. Brown.....	F. H. Snow.....	Joseph Savage.....	E. A. Popence.....	A. H. Thompson.....
1885	R. J. Brown.....	E. L. Nichols.....	G. H. Failyer.....	E. A. Popence.....	A. H. Thompson.....
1886	E. L. Nichols.....	J. D. Parker.....	N. S. Goss.....	E. A. Popence.....	I. L. Graham.....
1887	J. D. Parker.....	J. R. Mead.....	E. H. S. Bailey.....	E. A. Popence.....	I. D. Graham.....
1888	J. R. Mead.....	E. H. S. Bailey.....	T. H. Dinsmore, jr.....	E. A. Popence.....	I. D. Graham.....
1889	T. H. Dinsmore, jr.....	E. H. S. Bailey.....	G. H. Failyer.....	E. A. Popence.....	I. D. Graham.....
1890	G. H. Failyer.....	D. S. Kelly.....	F. W. Cragin.....	E. H. S. Bailey.....	I. D. Graham.....
1891	Robert Hay.....	F. W. Cragin.....	O. C. Charlton.....	E. H. S. Bailey.....	F. O. Marin.....
1892	E. A. Popence.....	F. O. Marvin.....	Mrs. N. S. Kedzie.....	E. H. S. Bailey.....	D. S. Kelly.....
1893	E. H. S. Bailey.....	J. T. Willard.....	E. B. Kneer.....	A. M. Collette.....	D. S. Kelly.....
1894	L. E. Sayre.....	I. D. Graham.....	J. L. Howitt.....	E. B. Kneer.....	D. S. Kelly.....
1895	Warren Knaus.....	I. D. Graham.....	S. W. Williston.....	E. B. Kneer.....	D. S. Kelly.....
1896	D. S. Kelly.....	S. W. Williston.....	E. B. Kneer.....	L. E. Sayre.....	.....
1897	S. W. Williston.....	L. E. Lantz.....	A. S. Hitchcock.....	E. B. Kneer.....	J. W. Beede.....
1898	D. E. Lantz.....	C. S. Parmenter.....	L. C. Wooster.....	E. B. Kneer.....	J. W. Beede.....
1899	E. B. Kneer.....	A. S. Hitchcock.....	J. R. Mead.....	D. E. Lantz.....	J. W. Beede.....
1900	A. S. Hitchcock.....	E. Miller.....	J. C. Cooper.....	D. E. Lantz.....	J. W. Beede.....
1901	E. Miller.....	J. C. Cooper.....	L. C. Wooster.....	D. E. Lantz.....	E. C. Franklin.....
1902	J. T. Willard.....	Edward Bartow.....	J. A. Yates.....	G. P. Grimsley.....	E. C. Franklin.....
1903	J. C. Cooper.....	Edward Bartow.....	J. A. Yates.....	G. P. Grimsley.....	Alva J. Smith.....
1904	Edward Bartow.....	L. C. Wooster.....	B. F. Eyer.....	G. P. Grimsley.....	Alva J. Smith.....
1905	L. C. Wooster.....	F. W. Bushong.....	W. A. Harshbarger.....	J. T. Lovewell.....	Alva J. Smith.....
1906	F. O. Marvin.....	B. F. Eyer.....	J. E. Welin.....	J. T. Lovewell.....	Alva J. Smith.....
1907	J. A. Yates.....	E. Haworth.....	F. B. Dains.....	J. T. Lovewell.....	Alva J. Smith.....
1908	E. Haworth.....	F. B. Dains.....	J. M. McWharf.....	J. T. Lovewell.....	Alva J. Smith.....
1909	F. B. Dains.....	J. M. McWharf.....	Alva J. Smith.....	J. T. Lovewell.....	F. W. Bushong.....
1910	F. B. Dains.....	J. M. McWharf.....	Alva J. Smith.....	J. T. Lovewell.....	F. W. Bushong.....
1911	J. M. McWharf.....	Alva J. Smith.....	J. E. Welin.....	J. T. Lovewell.....	L. D. Havenhill.....
1912	F. W. Bushong.....	Alva J. Smith.....	J. E. Welin.....	J. T. Lovewell.....	L. D. Havenhill.....
1913	Alva J. Smith.....	W. A. Harshbarger.....	J. A. G. Shirk.....	J. T. Lovewell.....	L. D. Havenhill.....
1914	W. A. Harshbarger.....	J. A. G. Shirk.....	J. E. Todd.....	J. T. Lovewell.....	L. D. Havenhill.....
1915	J. A. G. Shirk.....	J. E. Todd.....	F. U. G. Agrelius.....	J. T. Lovewell.....	L. D. Havenhill.....
1916	J. E. Todd.....	F. U. G. Agrelius.....	L. D. Havenhill.....	W. W. Swingle.....	W. A. Harshbarger.....
1917	F. U. G. Agrelius.....	L. D. Havenhill.....	B. M. Allen.....	W. W. Swingle.....	W. A. Harshbarger.....
				H. W. Swingle.....	
				Guy West Wilson.....	
1918	L. D. Havenhill.....	R. K. Nabours.....	B. M. Allen.....	Guy West Wilson.....	F. C. Bruchmiller.....

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Second Vice President, BENNETT M. ALLEN..... Lawrence.
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Secretary Emeritus, J. T. LOVEWELL..... Topeka.

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 J. M. MCWHARF, Ottawa.

J. A. G. SHIRK, Pittsburg.
 W. A. HARSHBARGER, Topeka.

PART II.—FIFTIETH ANNUAL MEETING.
SEMICENTENNIAL PROGRAM.

PART III.
FIFTIETH ANNUAL MEETING.

FIFTIETH ANNUAL MEETING.**GENERAL PROGRAM.**

1. Occurrence of Black Flies in Louisiana During Recent Years.
E. S. TUCKER.
2. Research Work with Insects Infesting Stored Rice. E. S. TUCKER.
3. Botanical Notes, 1917. FRANK U. G. AGRELIUS.
4. The Common Rocks and Gem-stones of Kansas and How to Recognize Them. M. M. SCHMIDT.
5. Hunting Dinosaurs on the Red Deer River, Alberta. C. H. STERNBERG.
6. The Moraines of Estes Park, Colorado. LYMAN C. WOOSTER.
7. Do Use and Disuse Modify Heredity. LYMAN C. WOOSTER.
8. A Probable Case of Superfetation in the Cow. MARY T. HARMAN.
9. Abnormalities in the Central Nervous System of the Chick.
FLORENCE ALSOP.
10. The Origin of Cyclones. A. A. GRAHAM.
11. On the Transmission of the Fowl Cestode, *Davinea Cesticillus*.
JAMES E. ACKERT.
12. War Bread: Corn Starch and High Protein Flour Mixtures for Baking. L. E. SAYRE.
13. Corn Oil. L. E. SAYRE.
14. Aqueous Loess. J. E. TODD.
15. Lacustrine Deposits near Atchison. J. E. TODD.
16. Evaporation in Kansas. CHARLES A. SCHULL.
17. *Physoderma zeae*, a New Corn Disease in Kansas. L. E. MELCHERS.
18. A Report of the Plant Diseases in Kansas for 1917. L. E. MELCHERS.
19. The Water Relation of Corn and the Sorghums. E. C. MILLER.
20. The Wamego Anticline. J. W. BEEDE.
21. The Algæ of the Water Supplies of Kansas. JAMES B. MCNAUGHT.
22. Correlation of the Formations Described in the Ft. Apache Region in Arizona, with Similar Formations in other Parts of the State.
ALBERT B. REAGAN.
23. The Mine Centre District, Ontario. ALBERT T. REAGAN.
24. Contributions of the Drug Laboratory in the University of Kansas in the Enforcement of the Food and Drug Law. G. N. WATSON.